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**Re: FCC Notice of Proposed Rule Making (NPRM); 47CFR Part 15; ET Docket 04-186; Unlicensed Operation in the Television Broadcast Bands.**

What has happened?

In May, 2004, the FCC proposed new rules that would allow unlicensed devices such as Wireless Local Area Network (WLAN) cards and Wireless Access Points to use vacant spectrum in the TV broadcast bands.

Why is this important to Shure?

Shure Incorporated is concerned because this same “vacant” spectrum is currently being used by wireless microphones and other types of wireless audio systems, such as wireless in ear monitors, IFB systems, and wireless intercoms.

**Wireless microphone systems are essential to all types of TV broadcast production.** Examples include electronic news-gathering, sports events, religious services, video production, and both studio and remote broadcasts. As the “front end” of the audio chain, the sound that wireless microphones deliver must be clear and free of noise and interference. **Large events like the national political conventions or the Super Bowl have 200 or more wireless systems in simultaneous operation.** This, in turn, requires a significant amount of interference-free RF spectrum.

What has Shure done in this Proceeding?

Shure initiated an extensive study of the interference effects from unlicensed devices on wireless microphone sound quality. Shure obtained a Part 5 Experimental license that permits us to transmit a simulated Wi-Fi signal in the UHF TV band. From the study, we learned that wireless microphones cannot operate successfully in the presence of co-channel interference from unlicensed devices. **Therefore, unlicensed devices must avoid TV channels that are in use by wireless microphones at a particular venue.**

What must the FCC do to protect wireless microphones and wireless audio systems?

**Shure is supportive of using television spectrum for new services, as long as they do not cause harmful interference to existing licensed users, including wireless microphones:**

- The FCC should **only** allow unlicensed devices to use the TV bands **if** existing licensed users, including TV broadcasters, wireless microphones, and audio systems are adequately protected from interference.
- **Interference protection requirements must be specified in any new rules permitting unlicensed operation.** Restating a general obligation to avoid interference is not sufficient.
- **The FCC must take a deliberate approach to the introduction of new unlicensed services in the TV bands,** rather than taking an “anything goes” approach (like the current Part 15 bands). **Only those services that have been adequately characterized, and for which effective interference mitigation techniques are in place should be permitted.** The Commission can authorize additional services later, when they have been fully defined.
- **A two-tiered approach will be needed to protect wireless microphones and audio systems from interference:**
  - **As suggested by the Commission in the NPRM, several “exempt” TV channels should be designated for wireless microphones in each market,** in which unlicensed devices would **not** be allowed to operate, and,
  - **The Commission must require unlicensed devices to use spectrum-sensing techniques to enable them to move to unoccupied TV channels when wireless microphones are present.** Unlicensed devices should also be able to detect and receive data from a wireless microphone beacon.

**The Commission must not authorize high power unlicensed operation in the TV bands in excess of the NPRM levels until interference issues are better understood.**